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Feature Article

Mobilizing older adults: A multi-site, exploratory and observational study on patients enrolled in the Hospital Elder Life Program (HELP)

Rhonda L. Babine, MS, APRN, ACNS-BC*, Kristiina E. Hyrkäs, PhD, LicNSc, MNSc, RN, Caitlin G. Mckenzie, MS, APRN, FNP-BC, Heidi R. Wierman, MD

Adult Health Clinical Nurse Specialist, Geriatrics, Maine Medical Center, 22 Bramhall St., Portland, ME 04102, USA

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ABSTRACT

The aim of this study was to explore and describe the characteristics of the Hospital Elder Life Program (HELP) sites and how they mobilize patients with volunteers in the United States and other countries. The purpose was to describe: the number of enrollments, modalities, fall and injury rates, and to identify barriers to mobilization. A survey was distributed to 228 international sites. The responding sites enrolled an average of 53.9 (SD 35.3) patients per month. The majority (76%) reported that mobilization included 'active range of motion exercises' and 'ambulation'. Eighteen percent identified volunteer training, safety and liability concerns as barriers. Falls with injury on HELP units was 0–3%, with an average rate of 0.46 per 1,000 patient days. No patient falls while ambulating with the HELP team and/or volunteers were reported. More research and evidence are needed to further determine barriers and safety of mobilization with the HELP during hospitalization.

Introduction

Adoption of models of care that prevent or reduce functional decline by mobilizing older adults during a hospital stay should be a priority amongst healthcare systems. Examples of these models of care and units include: the Hospital Elder Life Program (HELP),[1] Acute Care for Elders (ACE),[2] and geriatric inpatient rehabilitation, also known as geriatric evaluation and management (GEM) units.[3] The ACE unit has been strategically designed by utilizing nursing protocols to enhance self-care, including mobility. The protocol aimed at preventing immobility focuses on range of motion, ambulation three times a day, avoiding bedrest episodes and the use of restraints.[2,4] The GEM units primarily emphasize rehabilitation and maximizing elderly patients' functional capacity after acute health issues have been stabilized.[3,5] Rehabilitation typically involves interventions provided by a geriatrician, physical therapist and as needed by occupational therapy, social work, speech therapy and dietitians. The key reasons for older adult admission to a GEM rehabilitation unit is often to improve mobility and subsequent functional ability prior to discharge.[6,7]

The HELP is an evidenced-based program that has been adopted and implemented worldwide over the past two decades.[1] It is aimed at preventing delirium and functional decline in hospitalized older adults by utilizing specially trained volunteers.[1] The program has a multidisciplinary and multi-interventional approach. The HELP team generally consists of an elder life specialist, an elder life nurse specialist, and a geriatrician or other physician. Patients over the age of 70 are assessed for six modifiable delirium risk factors including immobility. Based on these risk factors, the HELP team develops patient-care plans that are then implemented. The plan consists of interventions which incorporate, among other things, early mobilization. At some HELP sites, in accordance with original HELP protocols, early mobilization, in addition to active range of motion, includes ambulation with volunteers after collaboration with nursing and physical therapy.[1] Active range of motion has been defined as moving each joint as it would normally be moving if the person were physically able, whereas ambulation has been described as walking two to three times a day. These mobilization techniques are standardized and included in the volunteer training manual.[8]

Mobilization as an intervention, its safety and potential harms, especially falls and falls with injuries, have rarely been a focus of interest in the earlier single and multi-site studies on the HELP protocols.[9–14] Only one systematic review article has explored older medical patients' mobilization by volunteers in hospitals.[15] The review identified a lack of scientific evidence and concludes that this topic is an area for development and evaluation.[15] This paper adds an

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* Corresponding author.
E-mail addresses: babinr@mmc.org (R.L. Babine), hyrkak@mmc.org (K.E. Hyrkäs), cmckenzie@mmc.org (C.G. Mckenzie), wiermh@mmc.org (H.R. Wierman).

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important piece to the body of knowledge about mobilization of hospitalized older adults. The project was pioneering: it invited for the first time since the establishment of the HELP program all its registered sites to participate. The aim of the study was to explore how the HELP sites mobilize patients and to describe observations on falls and falls with injuries in the United States and other countries.

Background

Decreased mobility is still very common today in hospitals. Despite the ability to walk independently, many patients spend the majority of time in their room (88%) with most of this time in bed (75–83%).[16–18] Low mobility levels (16%) and bedrest episodes (33%) are common in older persons. In itself, low mobility has been found as an independent predictor of poor outcomes at discharge including activities of daily living (ADL) decline, new institutionalization, and even death.[19]

Benefits of early mobilization, exercise and falls

The literature focusing on early mobilization during hospitalization suggests that older adults benefit from exercise without increased incidence of falls. For example, in a systematic review, de Morton and colleagues identified a substantial increase in the proportion of patients discharged to home (relative risk 1.08; 95% CI 1.03–1.14) when an exercise intervention was included in their hospital stay.[20] Moreover, Kosse and colleagues have reported, in a systematic review in geriatric hospitalized patients, that there were no differences in the number of incidents (e.g. falls, injuries) between exercise groups and groups receiving usual care.[21] In a meta-analysis, Tricco and colleagues assessed the potential effectiveness of interventions for preventing falls. Their analysis, including 283 randomized controlled trials (RCT), concluded that exercise alone and various combined interventions were associated with lower risk of injurious falls when compared with usual care.[22]

More recent studies on mobility and exercise have focused on examining lower extremity strengthening, falls and falls with injuries. For example, Padula and colleagues hypothesized that muscle weakness is a contributor to falls. The findings of their study has suggested that exercise not just improved lower body strength and balance but also reduced falls and fall related injuries.[23] MacCulloch has described similar results addressing that exercise strengthens muscles, improves balance and as a result can prevent falls.[24]

The amount of mobilization, patterns of ambulatory activity and falls in hospitalized older adults have not been shown to be related. Pately and Corbett have reported results from an initiative that increased ambulation to twice a day, from 18% to 65% between 2013 and 2015 at 21 medical centers. During this time the fall rate did not increase. However an interesting and significant finding was that fewer patients developed pneumonia during hospitalization.[25] Another study, examining ambulatory activity of older hospitalized patients and falls, found that patients walked very little, and that walking occurred in frequent short bouts. The results of this pilot study indicated no association between the fall outcome and mean daily steps, concluding that ambulation was not a predictor of falls.[26]

Falls and fall prevention programs

Falls are common, widespread and a serious safety threat to hospitalized patients.[27] Overall, the falls in United States hospitals have decreased over time, but large variations are reported in different patient populations. In acute care hospitals, the fall rate can range from 1.32 to 7.06 falls per 1000 patient days, with the highest rates on rehabilitation, medical and medical surgical units.[28] Multicomponent interventions are commonly used today in hospital organizations and these are believed to be necessary for fall prevention. The available evidence suggests that these programs may reduce relative risk for falls by 30%. However, when Miake-Lye and colleagues recently reassessed the benefits and harms of fall prevention programs in acute care settings, they recognized that such potential harms as increased use of restraints, sedating medications and decreased efforts to mobilize patients were not systematically examined.[29]

Obstacles to mobilization

Mobilization of older adults is not always a priority of hospital care. Frequently, the reasons for lack of early mobilization are the barriers or perceived hindrances by the healthcare team. A recent Canadian study, Mobilization of Vulnerable Elders in Ontario (MOVE ON), mapped the obstacles to mobilization in older adults, using focus group interviews with front line clinicians. The obstacles spanned the healthcare system including the patient and family, staff, and organizational culture. Examples of patient and family challenges to mobilization included lack of knowledge, beliefs or attitudes, and decreased motivation. Staff challenges comprised of attitudes and beliefs, fear of injuring the patient, and lack of knowledge of patient status. System based barriers were identified as lack of role clarity, lack of standardization of mobilization expectations, heavy workload, time constraints, accountability, and communication within the team.[30] Brown and colleagues' qualitative study has reported challenges of mobilization in hospitalized elders in the United States.[31] Of the 31 identified barriers, patients and staff acknowledged most often such obstacles as physical symptoms (e.g. weakness, pain, fatigue), presence of tethers (e.g. intravenous lines, catheters, oxygen), and lack of staff to assist with activity. However, nurses and physicians were more likely to attribute low mobility to lack of patient motivation than patients themselves.[32] Furthermore, a survey of nurses and rehabilitation therapists identified that nurses reported significantly higher perceived barriers to mobilization. Both disciplines identified that increasing mobility added work for nurses; nurses were also more likely to feel that they did not have enough time in their day to mobilize patients.[33]

In summary, the benefits of early mobilization in hospitalized older adults are well documented, but low mobility levels still remain common in acute health care organizations. The current literature is suggesting that mobilization and exercise may improve muscle strength, balance, and reduce falls and fall related injuries. There is no evidence demonstrating a relationship between falls and mobilization. However, acute healthcare facilities are today treating falls as 'never events' and thus prioritizing fall prevention with multiple interventions often leading to potential unintended consequences for patient mobility and contributing to immobility.[29,34,35] Multiple barriers have been recognized and described as well from patient and family, staff, and organizational perspectives. The challenges reported by clinical staff regarding workload and time constraints could be addressed utilizing the HELP volunteers. This study increases our understanding regarding mobilization strategies and the potential safety concerns of falls and injuries to elderly patients.

Purpose of the study

The purpose of this study was to describe characteristics of the HELP sites worldwide, number of patient enrollments, type of mobilization, and fall and fall injury rates. Perceptions regarding the barriers to mobilization and safety risks were also explored in the context of mobilization of hospitalized older adults enrolled in the HELP.

Research questions were:

- How were the HELP sites mobilizing patients enrolled in the program?
- What were the identified barriers to mobilization?
- How common were falls and falls with injuries for patients mobilized in the HELP?

Methods

Study design, setting, participants

The study design was exploratory and observational, and included settings that were identified using the official HELP site registrant list. The initial email group, inviting sites to participate, included the contact information for subscribers to the official HELP website. The data were collected using REDCap, Tufts Clinical and Translational Science Institute, Boston, Massachusetts, USA. Institutional Review Board exemption was obtained before the start of the data collection (IRB # 4683X).

Table 1
Survey questions.

Section	Questions
Section 1 Hospital characteristics	How many beds is your hospital licensed for? How many patients do you enroll in HELP per month? What is your average length of stay for HELP patients (days)?
Section 2 Falls and falls with injuries	What is the overall fall rate at your hospital? What is the overall fall rate with injury at your hospital? What is the fall rate with injury on primary HELP unit? What unit of measurement does your hospital use to track fall rates?
Section 3 Mobilization and ambulation	Does your HELP site provide a mobility intervention? How does your site define mobility? Range of motion Ambulation Both Does your HELP site Include ambulating patients as part of the interventions offered? How many patients does your HELP site ambulate on average per month? Who ambulates with the patients? Has a patient ever fallen while ambulating with your HELP team? Follow up question: who was with the patients when they fell?
Section 4 Barriers to ambulation	What are the barriers that keep your site from ambulating patients? Volunteer training Safety concerns Liability concerns Other Does your hospital use bed/chair alarms?
Section 5 For U.S. respondents	In your opinion, since 2009 (Medicare enactment of no pay rule for falls), have the rates of ambulating patients in your HELP program? Increased Decreased Stayed the same Unknown In your opinion, since 2009 (Medicare enactment of no pay rule for falls), have the rates of ambulating patients in your hospital? Increased Decreased Stayed the same Unknown

Data collection tool and variables

The survey was constructed by the authors using the current literature and the HELP volunteer manual.[8] It included five sections. The first contained three questions regarding hospital characteristics: number of licensed beds, number of HELP patient enrollments per month, and the average length of stay for patients in the program. In the second section, participants were asked four questions regarding falls at their hospital including: overall fall rate, overall fall rate with injury, fall rate with injury on primary HELP unit, and the unit of measure utilized to track patient falls. Five questions and one follow-up query in the third section explored: provision and description of mobility, inclusion of ambulation as an intervention, number of ambulated HELP patients every month, who ambulates with the patients, and whether a patient had ever fallen while ambulating with the HELP. A follow-up question asked participants to specify who was with the patient when they fell. The fourth section asked two questions, one multiple-choice question on the barriers (i.e. volunteer training, safety concerns, liability concerns, and 'other' with a write-in option) to ambulating patients enrolled in the HELP and a query focusing on patient safety and the utilization of bed/chair alarms. In the last section, two additional questions to the U.S. respondents queried perceived rates of ambulation in the HELP program and hospital wide since the enactment of the Medicare and Medicaid Services (CMS) in 2009 not reimbursing for injurious falls occurring while hospitalized (Table 1).

The questions were reviewed and modified based on feedback and input from the seven HELP board members. Prior to the survey distribution, the questions were reviewed by a single HELP site team for face validity. No further changes were recommended by this team. The final version of the survey (17 questions) was sent out on November 30, 2015, with subsequent reminders on January 8, 2016, and June 2, 2016. The reminders were sent to contacts verified by the HELP central office.

Data analysis

Descriptive statistical methods were used to analyze the quantitative data using the Statistical Package for Social Sciences (SPSS) for Windows, Version 18 (SPSS Inc., Chicago, IL, USA). The open ended, free text answers were analyzed utilizing qualitative content analysis method.

Results

Characteristics of responding HELP sites and patient enrollments

The survey link was distributed to 228 email addresses of registered individuals at HELP central in the United States and 24 international locations (i.e. Australia, Austria, Brazil, Canada, China, Columbia, Germany, Hong Kong, India, Israel, Italy, Japan, Mexico, Netherlands, New Zealand, Peru, Poland, Portugal, Republic of Korea, Scotland, Spain, Switzerland, Taiwan, and United Kingdom). The distribution included all email addresses from HELP central regardless of the programs' stage of development which can vary from contemplating, early, mature to defunct. Of the 228 sites/contacts, 85 opened the survey and 28 partially or fully completed the questions. The response rate was 12.2%. Almost half (42.9%) were from international HELP sites (i.e. Canada, China, Israel, Italy, Mexico, and Spain) and slightly over half (57.1%) from the United States. For data analysis purposes, the responding sites were categorized into small (<100 beds), medium (100–249 beds), moderate (250–500 beds) and large (>500 beds) hospital size. Over one-third of the sites (35.7%) were large hospitals, licensed for over 500 beds. The characteristics of the responding HELP sites are displayed in Table 2.

Table 2
Description of the settings: participating hospitals by size, location, length of stay, and HELP enrollments.

Hospital size		Location of HELP site	Length of stay days (mean)	Number of enrollments every month (mean)
Licensed beds	% (*n* = 28)			
Small (< 100)	14.3 (4)	Canada, Mexico, United States	4.5 (SD 2.5)	33.0 (SD 24.0)
Medium (100–249)	17.9 (5)	Canada, Spain, United States	7.8 (SD 4.5)	43.3 (SD 30.0)
Moderate (250–500)	32.1 (9)	Canada, Italy, United States	4.1 (SD 3.3)	41.8 (SD 33.4)
Large (> 500)	35.7 (10)	China, Israel, United States	5.0 (SD 3.1)	74.1 (SD 35.6)
All HELP sites			5.3 (SD 3.4) MD 4.2	53.9 (SD 35.3) MD 50.0

Table 3
Description of mobilization in the participating hospitals and number of patients ambulated per month.

Licensed beds (*N* = 28)	Site offers mobility (*n* = 24)		Site offers ambulation (*n* = 20)		Number of patients ambulated every month (mean, SD)
	Yes (*n* = 21)	No (*n* = 3)	Yes (*n* = 15)	No (*n* = 5)	
Small (<100)	8%	4%	5%	5%	10 (SD n/a)
Medium (100–249)	17%	4%	15%	–	15.5 (SD 13.4)
Moderate (250–500)	21%	4%	15%	10%	22.3 (SD 18.6)
Large (>500)	42%	–	40%	10%	23.1 (SD 17.4)
All HELP sites	88%	12%	75%	25%	20.8 (SD 15.6) MD 20.0

The sites enrolled altogether an average of 53.9 (SD 35.3, MD 50.0) patients per month. Large hospitals enrolled around 74.1 (SD 35.6), moderate 41.8 (SD 33.4), medium 43.3 (SD 30.0) and small facilities an average of 33.0 (SD 24.0) patients per month. The average length of stay (LOS) was 5.3 (SD 3.4, MD 4.2) days. The shortest LOS was around 4 days, and reported in moderate (mean 4.1, SD 3.3) and small size (mean 4.5, SD 2.5) hospitals. The average LOS was 5 days (SD 3.1) in large facilities. Medium size hospitals reported the longest of 7.8 (SD 4.5) days for an average LOS (Table 2). Over half of the locations (60.9%) utilized falls per 1,000 patient days as a unit of measure to report falls, and 39.1% used percentages. The remaining 17.9% of respondents did not specify a unit of measure in the survey.

Mobilization

When asked to define mobility, 10% responded 'ambulation', 14% 'active range of motion 'exercises', and 76% reported that mobility included both 'active range of motion exercises' and 'ambulation'. Most of the sites (88%) mobilized patients, with a majority (75%) utilizing ambulation as an intervention. Mobility was offered most often (42%) in large hospitals where patients were also more commonly (40%) ambulated (Table 3). Of the 15 sites that provided ambulation, this was usually performed by volunteers (93%), and HELP staff (47%), less commonly by mobility aids (13%), and others (33%) including student interns, nursing assistants, and occupational or physical therapy staff (Fig. 1). Because patients could potentially ambulate more than once a day and with multiple team members, sites could select more than one option for this question. An average, 20.8 (SD 15.6, MD 20.0) patients were ambulated with the HELP per month amongst the responding locations. The reported number of ambulated patients per month varied from an average of 10 in small hospitals, 15.5 (SD 13.4) in medium, 22.3 (SD 18.6) in moderate to 23.1 (SD 17.4) patients in large facilities (Table 3).

Barriers to mobilization

When queried, the HELP sites identified barriers that prevented ambulation with volunteers. Eighteen percent (18%) recognized volunteer training, safety, and liability concerns as issues precluding ambulation. No other challenges were acknowledged in the open ended 'other' response section of this question.

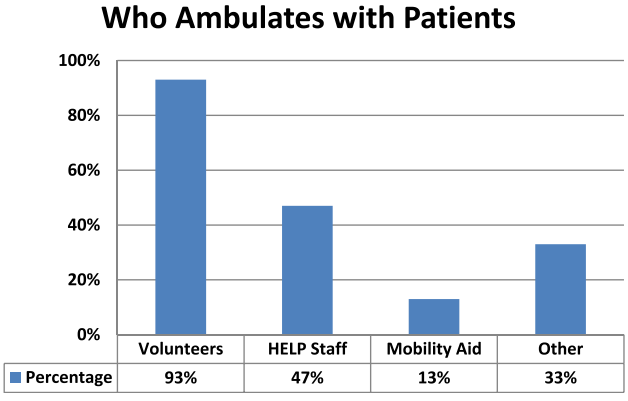

Fig. 1. Who ambulates with patients (*n* = 15).

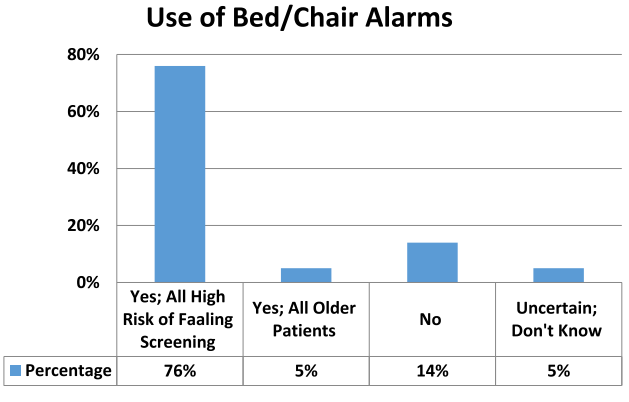

Fig. 2. Use of bed/chair alarms (*n* = 21).

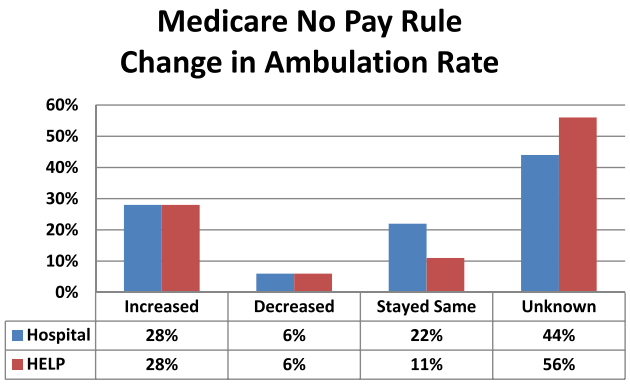

Fig. 3. Change in perceived ambulation rates since Centers for Medicare and Medicaid Services (CMS) enactment of no pay for fall in hospitalized patients (n = 18).

Falls and safety of mobilization

Responding sites reported falls in either percentages or rates of falls per 1,000 patient days. The percentages were between 1–10%, and an average rate of 3.35 per 1000 patient days. The overall falls with injuries varied between 0–37.8%, and an average rate of 0.99 per 1000 patient days. With regards to falls with injury on their main HELP unit, the reported falls varied between 0–3%, and an average rate was 0.46 per 1000 patient days. All respondents reported that no patients had fallen while ambulating with the HELP team and/or volunteers.

A majority of the sites (76%) were using chair and bed alarms with all patients identified as a high risk based on a fall risk screening. Only a few (5%) used these alarms in patients over the age of 70 regardless of their risk. This result indicates that, most of the time, bed and chair alarms were used as an intervention based on a patient's fall risk assessment rather than age alone (Fig. 2).

The U.S sites were asked two additional questions for their opinion regarding rates of ambulation in their HELP and hospital since the 2009 Medicare enactment of no payment for inpatient fall rule. Over half of the respondents (67%) could not specify a change in rates of ambulation, or reported that the rate had remained the same in HELP. Similarly, over half of the respondents (66%) reported that in-patients' overall ambulation rates had stayed the same, or they could not specify any changes in the overall hospital ambulation rates (Fig. 3).

Discussion

Our study is the first to describe how the HELP sites mobilize patients. The survey was conducted in 2015–2016. The responding sites represented health care organizations in the US and six international locations (i.e. Canada, China, Israel, Italy, Mexico, and Spain) and included small (< 100 beds), medium (100–249 beds), moderate (250–500 beds) and large (> 500 beds) size facilities. The sites enrolled a monthly average of 53.9 patients. Mobilization of patients with ambulation and/or range of motion was very common (88%) and was performed primarily by volunteers (93%).

The survey was distributed with reminders three times over a seven month period. The response rate was 12%, and we consider that this was low for a few reasons. Low response rates (6–16%) are, however, typical and commonly reported in multi-site, international studies.[36,37] A language barrier may have impacted the response rate and also open ended responses from the international sites in this study as the survey was conducted in English only.

Due to varying administrative structures of HELP worldwide, it was not possible to identify and send the survey to an appointed person at the institutions. Instead, the survey was sent to a contact person of each site who remained anonymous to us. Compiling a comprehensive data base for an international internet survey was challenging and we concur with other researchers that the concerns for spam and web-based electronic data collection method could impact negatively on the response rate.[36,37]

HELP – impact of early mobilization on staffing and length of stay

Besides the HELP, a few other programs and initiatives reported in the literature, have utilized early mobilization and ambulation as an intervention in acute care for hospitalized older adults. It is, however, important to note that there are some differences between the provided interventions and who ambulates with patients. The findings of our study showed that in the HELP program mobilization and ambulation was almost exclusively (93%) performed by volunteers. In comparison to the HELP, MOVE ON (Mobilization of Vulnerable Elders in Ontario; Canada) utilized existing staff to mobilize patients,[30,38] the STRIDE (assiSTed eaRLy mobility for hospitalizeD older vEterans; USA) program provided supervised daily walks by a recreation therapy assistants,[39] and CHERISH (Eat, Walk, Engage; Australia) developed a position called allied health assistant (AHA) to support mobilization.[40] An essential aspect to comment on, and a potential solution to the current challenges regarding time and resource constraints, is that the HELP utilizing trained volunteers for mobilization did neither increase workload for staff, nor create additional costs or generate a need for new additional human resources.

Another central observation is that the average LOS of the HELP patients in our study was 5.3 days. The LOS was shortest, around 4 days, in moderate and small size hospitals; 5 days in large facilities and longest and almost 8 days in medium size hospitals. Similar, but many times longer LOSs have been reported from the other programs: STRIDE 4.7 days,[39] CHERISH 6–9 days (2011–2012),[40] and MOVE ON 8.93 days.[38] Further comparison and interpretation of our results with those reported in the literature is not possible due to the limitations and small sample size in this study.

HELP and its impact on falls

In our study, the overall hospital fall rates were between 1–10% and 3.35 falls per 1,000 patient days, and the main HELP units reported 0–3% and 0.46 per 1,000 patient days for falls with injury. None of these falls or falls with injuries had occurred while ambulating with volunteers. It is difficult to compare and contrast these findings with other programs using mobilization as an intervention, because falls and falls with injuries have been reported using different and varying metrics. However, similar observations regarding no or low impact of mobilization on falls and falls with injuries have been described. For example, STRIDE has described one fall in 92 patients (intervention group; 1.1%) during the study period, which was not associated with ambulation.[39] No increase in fall incidence was reported with CHERISH: the number of falls varied monthly (October 2010-June 2012) from zero to ten for patients on the 30 bed medical intervention ward.[40] MOVE ON has not provided either fall rates or percentages, but has noted about challenges regarding data quality and specificity, and only supplementary data were available in a recently published article.[38] Falls with injuries was explored only in our study. We found that the overall hospital falls with injuries varied in our study organizations between 0–37.8% and an average rate of 0.99 per 1,000 patient days.

Study limitations

This descriptive study has some limitations. The sites surveyed could have been at various stages of program implementation (i.e. contemplating, early stage, mature, defunct) and this may have

reflected staffs' understanding of the program. The findings need to be interpreted cautiously and no causality can be assumed. The reported results were provided by staff, may have been based on recall, and therefore biased. The findings from this study were limited by the low response rate and the unavailability of denominators to calculate some percentages due to the formatting of questions. Therefore the results cannot be generalized to all institutions with the HELP.

Conclusions and practical implications

The findings of this study showed that mobilization of older adults with the HELP in different sized hospitals is implemented in the U.S and other sites worldwide. Range of motion and/or ambulation interventions were used to mobilize patients who were enrolled in this program. The reported barriers include issues regarding volunteer training, safety, and liability concerns about falls and falls with injuries. However, the sites reported no known falls during ambulation with HELP staff or volunteers. The findings of this study seem to suggest that volunteers can safely provide ROM and ambulation activities for patients. Ongoing research is needed to evaluate HELP and the extent to which patients can be mobilized at their highest level.

The length of stay, falls, and falls with injuries are important indicators to monitor, and in future studies the findings reported in this article could be used as benchmarks. Furthermore, our recommendation is to identify, define and standardize metrics that focus on mobilization, and which can be used to measure and monitor amounts of ambulation and exercise (e.g. number of steps, minutes spent for walking, and mobilization episodes per hospital day) in older adults and those patients enrolled in the HELP. Additional future studies comparing the volunteers' impact on HELP and non-HELP mobilization outcomes such as length of stay, discharge location, falls, and patient and staff satisfaction would be important and interesting areas of focus as well.

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Supplementary material

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.gerinurse.2018.10.005.

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